**Grade 7 – Science MidTerm Exam Study Guide**

Know the definition of the vocabulary words listed on pages 6, 12,

**Locate past quizzes and tests and study them in addition to the review questions at the end of each chapter.**

Use your class notes and the textbook to complete the following statements regarding the key concepts in each of the following chapters:

1. **Metric System –** you need to refer to your notes and handouts regarding the metric system.

* Define: length, volume and mass
* Identify the numerical value of the following prefixes: kilo-; centi- and milli- Remember that there are 3 other prefixes that exist but are rarely used: hecto-(100x), deca- (10x) and deci- (1/10th).
* Be able to convert: grams to kilograms; millimeter to kilometer; kilogram to milligram; and other combinations
* Identify the SI units of:
  + **Length** – meter (base unit); kilometer, centimeter and millimeter. **Volume** – liter (base unit); milliliter and cubic centimeter (cm3)
  + **Mass** – gram (base unit); kilogram, centigram and milligram
* Identify the methods by which these measurements are taken:
  + Meter stick
  + Graduated cylinder
  + Triple-beam balance

1. **Chapter 1 – The Nature of Science – pp. 6-18**

* Explain the steps taken in scientific methods.
* Distinguish between observations and inferences.
* Compare and contrast scientific variables and constants
* Explain how a control is used during an experiment
* Read and study the ***Summary*** items on pages 11 and 18
* Read and study the ***Reviewing Main Ideas*** section on page 23.

1. **Handout for Simple Machines**

***Section 3 – Simple Machines***

* Define work. Work equals force applied times the distance over which the force is applied: W = force x distance.
* Distinguish the different types of simple machines.
* A machine is a device that makes work easier. It can increase force or distance, or change the direction of an applied force. Explain how machines make work easier.
* Know the following vocabulary words: work, simple machines, compound machine, mechanical advantage, pulley, lever, inclined plane.
* Work is done when an object moves in the direction of the applied force.
* Work can be calculated from the equation:
* Machines are devices that make work easier.
* Mechanical advantage is the number of times the input force is increased by a machine.

Mechanical advantage = Force out (in Newtons)

Force in (in Newtons)

*Mechanical advantage is the output force divided by the input force.*

* A simple machine is a machine that does work with only one motion.
* The six simple machines are the pulley, lever, wheel and axle, inclined plane, wedge, and screw.

For the section on Simple Machines, please refer to the information printed above and rely on your notes.

1. **Chapter 8 – Classification and Cell Structure pp 214 – 230**

Know ALL of the vocabulary words on pages 214 & 221.

Know the following concepts:

* Distinguish between living and nonliving things.
* Identify what living things need to survive.
* Describe how early scientists classified living things.
* Explain the system of *binomial nomenclature*.
* Demonstrate how to use a classification (dichotomous) key.
* Describe the development of the cell theory.
* Identify names and function of each part of a cell.
* Explain how important a nucleus is in a cell.
* Compare tissues, organs, and organ systems.
* Read and study the ***Summary*** items on pages 217, 220, and 230.
* Read and study the ***Reviewing Main Ideas*** section on page 239, section 1-3 only.